

WHAT IS CLAIMED:

1. A first code arrangement on a computer-readable medium, execution of which causes a processor to generate a second code arrangement representing a third party copy command and corresponding parameters thereof, the arrangement comprising:

a calling portion in response to which said processor is operable to begin the second-code-arrangement generation process; and

at least one data entity portion upon which said generation process operates, wherein each data entity portion identifies a third party copy device ("3PCE") to carry out the copy process, a destination device to receive the copied data, desired data that is to be copied and a source of said desired data.

2. The computer-readable first code arrangement of claim 1, wherein each said data entity portion is a data structure in the form of an array that includes:

a 3PCE identifier that identifies a 3PCE;

a destination device identifier to identify said destination device; and

a source array to identify desired data to be copied and at least one source from which to copy corresponding desired data.

3. The computer-readable first code arrangement of claim 1, wherein said at least one data entity portion is a data structure in the form of an array that is itself an element in an array of said data entity arrays.

4. The computer-readable first code arrangement of claim 1, further comprising: at least one portion of in-line data that provides context so as to enhance a recovery operation to which said data entity portion is relevant.

5. The computer-readable first code arrangement of claim 1, wherein said data entity portion identifies only a single destination to receive said copied data.

6. The computer-readable first code arrangement of claim 1, wherein said desired data is formed of at least two different parts such that said data entity portion correspondingly identifies at least two sources of said different portions, respectively.

7. The computer-readable first code arrangement of claim 1, wherein said copy command code is the EXTENDED COPY command defined by the Small Computer Systems Interface ("SCSI") standard.

8. The computer-readable first code arrangement of claim 1, where said first code arrangement is an alphanumeric text string in source code.

9. The computer-readable first code arrangement of claim 1, wherein said first code arrangement is block within machine-executable code.

10. A liaison system interposed between an application program running on a host and a third party copy engine ("3PCE") external to said host, said application program needing to copy desired data from a source device external to said host to a destination device external to said host via said 3PCE, the liaison system comprising:

an application program interface ("API") to receive the following first code arrangement from said application program:

a calling portion; and

at least one data entity portion that identifies said 3PCE, said destination, said desired data and said source; and

a copy command generator to generate a second code arrangement string representing a copy command and corresponding parameters thereof that will cause said 3PCE to copy said desired data from said source to said destination;

wherein said generator begins operation in response to said calling portion; and

wherein said generator is operable to generate said second code arrangement based upon said data entity portion.

11. The liaison system of claim 10, wherein said second code arrangement represents the EXTENDED COPY command defined by the Small Computer Systems Interface ("SCSI") standard.

5 12. The liaison system of claim 10, wherein said generator is operable to query said 3PCE to confirm that said 3PCE is of a type supported by said generator before said generator generates said second code arrangement.

10 13. The liaison system of claim 10, wherein said generator is operable to query said 3PCE to obtain particular operational parameters supported by said 3PCE for a copy operation.

15 14. The liaison system of claim 10, wherein said generator is operable to verify that said particular operational parameters received from said 3PCE are each supported by said generator before said generator generates said second code arrangement.

20 15. The liaison system of claim 14, wherein, if said generator supports fewer than all of said particular operation parameters, said generator is operable to communicate with said 3PCE to confirm that said 3PCE can tolerate receiving a copy command for which the unsupported ones of said particular operational parameters are not present before said generator generates said second code arrangement.

25 16. The liaison system of claim 10, wherein if a size of said desired data is greater than said 3PCE can accommodate via execution of a single a copy command, then said generator is operable to generate a plurality of said second code arrangements, wherein each one of said plurality copies less than all of said desired data but together said plurality copies all of said desired data.

30 17. The liaison system of claim 10, wherein said host, said API and said generator are each processes running on a server, and

wherein said server includes at least one non-volatile memory, at least one processor, and at least one random access memory (RAM) arranged on at least one of: a motherboard where said at least one processor is also located; and on at least one circuit card separate from said mother board.

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18. A method of interfacing between application program running on a host and a third party copy engine ("3PCE") external to said host, said application program needing to copy desired data from a source device external to said host to a destination device external to said host via said 3PCE, the method comprising:

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receiving a first code arrangement from said application program, said first code arrangement including:

a calling portion; and

at least one data entity portion that identifies said 3PCE, said destination, said desired data and said source;

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initiating, in response to said calling portion, a process to generate a second code arrangement representing a copy command and corresponding parameters thereof that will cause said 3PCE to copy said desired data from said source to said destination; and

forming, once said process is begun, said second code arrangement based upon said data entity portion.

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19. The method of claim 18, wherein said second code arrangement represents the EXTENDED COPY command defined by the Small Computer Systems Interface ("SCSI") standard.

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20. The method of claim 18, further comprising:

querying, before said second code arrangement is formed, said 3PCE to confirm that said 3PCE is of a type supported by said method.

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21. The method of claim 18, querying said 3PCE to obtain particular operational parameters supported by said 3PCE for a copy operation.

22. The method of claim 21, further comprising:
verifying, before said second code arrangement is formed, that said particular operational parameters received from said 3PCE are each supported by said method.

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23. The method of claim 18, further comprising:
communicating with said 3PCE, if said generator supports fewer than all of said particular operation parameters, to confirm that said 3PCE can tolerate receiving a copy command for which the unsupported ones of said particular operational parameters are not present before said second code arrangement is formed.

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24. The method of claim 18, further comprising:
repeating the step of forming, if a size of said desired data is greater than said 3PCE can accommodate via execution of a single a copy command, so as to form a plurality of said second code arrangements, wherein each one of said plurality copies less than all of said desired data but together said plurality copies all of said desired data.

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25. A computer-readable medium having code portions embodied thereon that, when read by a first processor, cause a second processor to perform the method of claim 1.

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26. The computer-readable medium of claim 25, wherein said first processor and said second processor are the same.

27. A liaison system interposed between an application program running on a host and a third party copy engine ("3PCE") external to said host, said application program needing to copy desired data from a source device external to said host to a destination device external to said host via said 3PCE, the liaison system comprising:

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an application program interface ("API") to receive the following first code arrangement from said application program:

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a calling portion; and

at least one data entity portion that identifies said 3PCE, said destination, said desired data and said source; and

a copy command generator to generate a second code arrangement representing the EXTENDED COPY command defined by the Small Computer Systems Interface ("SCSI") standard and corresponding parameters thereof that will cause said 3PCE to copy said desired data from said source to said destination;

wherein said generator begins operation in response to said calling portion; and

wherein said generator is operable to generate said second code arrangement based upon said data entity portion;

wherein said generator is operable to query said 3PCE a first time to confirm that said 3PCE is of a type supported by said generator before said generator generates said second code arrangement;

wherein, if said 3PCE is supported, then said generator is operable to query said 3PCE a second time to obtain particular operational parameters supported by said 3PCE for a copy operation;

wherein said generator is operable to verify that said particular operational parameters received from said 3PCE are each supported by said generator before said generator generates said second code arrangement;

wherein, if said generator supports fewer than all of said particular operation parameters, then said generator is operable to communicate with said 3PCE to confirm that said 3PCE can tolerate receiving a copy command for which the unsupported ones of said particular operational parameters are not present before said generator generates said second code arrangement; and

wherein if a size of said desired data is greater than said 3PCE can accommodate via execution of a single a copy command, then said generator is operable to generate a plurality of said second code arrangements, wherein each one of said plurality copies less than all of said desired data but together said plurality copies all of said desired data.

28. A method of interfacing between application program running on a host and a third party copy engine ("3PCE") external to said host, said application program needing to copy desired data from a source device external to said host to a destination device external to said host via said 3PCE, the method comprising:

5 receiving a first code arrangement from said application program, said first code arrangement including:

a calling portion; and

at least one data entity portion that identifies said 3PCE, said destination, said desired data and said source; and

10 initiating, in response to said calling portion, a process to generate a second code arrangement representing the EXTENDED COPY command defined by the Small Computer Systems Interface ("SCSI") standard and corresponding parameters thereof that will cause said 3PCE to copy said desired data from said source to said destination;

15 forming, once said process is begun, said second code arrangement based upon said data entity portion;

querying, before said second code arrangement is formed, said 3PCE to confirm that said 3PCE is of a type supported by said method;

querying said 3PCE to obtain particular operational parameters supported by said 3PCE for a copy operation;

20 verifying, before said second code arrangement is formed, that said particular operational parameters received from said 3PCE are each supported by said method;

communicating with said 3PCE, if said generator supports fewer than all of said particular operation parameters, to confirm that said 3PCE can tolerate receiving a copy command for which the unsupported ones of said particular operational parameters are not present before said second code arrangement is formed; and

25 repeating the step of forming, if a size of said desired data is greater than said 3PCE can accommodate via execution of a single a copy command, so as to form a plurality of said second code arrangements, wherein each one of said plurality copies less than all of said desired data but together said plurality copies all of said desired data.